

SEQUENCE LISTING

<110> Reed, John C.
Pio, Frederick F.
Godzik, Adam
Stehlik, Christian
Damiano, Jason S.
Lee, Sug-Hyung
Oliveira, Vasco A.
Hayashi, Hideki
Pawlowski, Krzysztof

<120> Novel Card Domain Containing
Polypeptides, Encoding Nucleic Acids, and Methods of Use

<130> P-LJ 4752

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Ala Ala Gln Glu Ala Gln Ala Asp Ser Gln Ser Pro Lys Leu His Gly	
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Cys Trp Asp Pro His Ser Leu His Pro Ala Arg Asp Leu Gln Ser His	
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Arg Pro Ala Ile Val Arg Arg Leu His Ser His Val Glu Asn Met Leu	
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Asp Leu Ala Trp Glu Arg Gly Phe Val Ser Gln Tyr Glu Cys Asp Glu	
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Ile Arg Leu Pro Ile Phe Thr Pro Ser Gln Arg Ala Arg Arg Leu Leu	
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Phe Ser Thr Pro Gly His Leu Asn Asp Asp Ala Asp Thr Val Leu Val	
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gatgcttttt ctcttggaat aaaacagcct gaagcccctg agatcacagt gttcttcagt 480
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gatggacaga gatatgagga gctagatgat tctttatact taggaaaaga ggaatatcta 720
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ccagagcacg ttggatatga tggatgaagag gacttcgaga attcagaaac cacagagttc 840
tctggtgaag aaccaagtta tgagggatca gaaaccagcc tttcattgga ggaggaacag 900
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			20					25					30		
Arg	Val	Leu	Asn	Lys	Glu	Glu	Met	Glu	Lys	Val	Lys	Arg	Glu	Asn	Ala
		35					40					45			
Thr	Val	Met	Asp	Lys	Thr	Arg	Ala	Leu	Ile	Asp	Ser	Val	Ile	Pro	Lys
	50					55				60					
Gly	Ala	Gln	Ala	Cys	Gln	Ile	Cys	Ile	Thr	Tyr	Ile	Cys	Glu	Glu	Asp
65					70					75				80	
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<400> 89

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1				5					10					15		
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Gly	Thr	Ile	Asn	Gly	Leu	Leu	Asp	Glu	Leu	Leu	Glu	Thr	Asn	Val	Leu	
			20					25					30			
agc	cag	gaa	gac	aca	gag	ata	gta	aaa	tgt	gaa	aat	gtt	aca	gtt	atc	144
Ser	Gln	Glu	Asp	Thr	Glu	Ile	Val	Lys	Cys	Glu	Asn	Val	Thr	Val	Ile	
		35					40					45				
gat	aag	gcc	cga	gat	ttg	ctt	gac	tct	gtt	att	cgg	aaa	ggg	gca	ggg	192
Asp	Lys	Ala	Arg	Asp	Leu	Leu	Asp	Ser	Val	Ile	Arg	Lys	Gly	Ala	Gly	
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gca	tgt	gaa	att	tgc	atc	aca	tac	att	tgt	gaa	gaa	gac	agg	tac	ctg	240
Ala	Cys	Glu	Ile	Cys	Ile	Thr	Tyr	Ile	Cys	Glu	Glu	Asp	Arg	Tyr	Leu	

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Ser Gln Glu Asp Thr Glu Ile Val Lys Cys Glu Asn Val Thr Val Ile	
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Asp Lys Ala Arg Asp Leu Leu Asp Ser Val Ile Arg Lys Gly Ala Gly	
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Ala Cys Glu Ile Cys Ile Thr Tyr Ile Cys Glu Glu Asp Arg Tyr Leu	
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Val Ile Asp Lys Ala Arg Ala Leu Leu Asp Ser Val Ile Arg Lys Gly	
50 55 60	
Ala Gly Ala Cys Glu Ile Cys Ile Thr Tyr Ile Cys Glu Glu Asp Ser	
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Tyr Leu Ala Gly Thr Leu Gly Leu Ser Ala Gly Asn Ala Val Gln Ala	
85 90 95	
Gly Gly Ala Cys Ser Thr Ser Ser Gly Gln Asp Leu	
100 105	

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acatctgctg gaagtcctct gggattcaag gtacagggaa tgaagagtag ttttacagaa 180
aaaagaggac aatattggga tcacctttga cctttccatt tggaaataat attttctatt 240
gtgttataga aaggtgggaa gctttcatcc agaaca atg aat ttc ata aag gac 294
Met Asn Phe Ile Lys Asp
1 5

aat agc cga gcc ctt att caa aga atg gga atg act gtt ata aag caa 342
Asn Ser Arg Ala Leu Ile Gln Arg Met Gly Met Thr Val Ile Lys Gln
10 15 20

atc aca gat gac cta ttt gta tgg aat gtt ctg aat cgc gaa gaa gta 390
Ile Thr Asp Asp Leu Phe Val Trp Asn Val Leu Asn Arg Glu Glu Val
25 30 35

aac atc att tgc tgc gag aag gtg gag cag gat gct gct aga ggg atc 438
Asn Ile Ile Cys Cys Glu Lys Val Glu Gln Asp Ala Ala Arg Gly Ile
40 45 50

att cac atg att ttg aaa aag ggt tca gag tcc tgt aac ctc ttt ctt 486

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Ile | His | Met | Ile | Leu | Lys | Lys | Gly | Ser | Glu | Ser | Cys | Asn | Leu | Phe | Leu | | |
| 55 | | | | | 60 | | | | | 65 | | | | | 70 | | |
| aaa | tcc | ctt | aag | gag | tgg | aac | tat | cct | cta | ttt | cag | gac | ttg | aat | gga | 534 | |
| Lys | Ser | Leu | Lys | Glu | Trp | Asn | Tyr | Pro | Leu | Phe | Gln | Asp | Leu | Asn | Gly | | |
| | | | 75 | | | | | | 80 | | | | | 85 | | | |
| caa | agt | ctt | ttt | cat | cag | aca | tca | gaa | gga | gac | ttg | gac | gat | ttg | gct | 582 | |
| Gln | Ser | Leu | Phe | His | Gln | Thr | Ser | Glu | Gly | Asp | Leu | Asp | Asp | Leu | Ala | | |
| | | | 90 | | | | | | 95 | | | | | 100 | | | |
| cag | gat | tta | aag | gac | ttg | tac | cat | acc | cca | tct | ttt | ctg | aac | ttt | tat | 630 | |
| Gln | Asp | Leu | Lys | Asp | Leu | Tyr | His | Thr | Pro | Ser | Phe | Leu | Asn | Phe | Tyr | | |
| | | 105 | | | | | 110 | | | | | | 115 | | | | |
| ccc | ctt | ggt | gaa | gat | att | gac | att | att | ttt | aac | ttg | aaa | agc | acc | ttc | 678 | |
| Pro | Leu | Gly | Glu | Asp | Ile | Asp | Ile | Ile | Phe | Asn | Leu | Lys | Ser | Thr | Phe | | |
| | 120 | | | | | 125 | | | | | 130 | | | | | | |
| aca | gaa | cct | atc | ctg | tgg | agg | aag | gac | caa | cac | cat | cac | cgc | gtg | gag | 726 | |
| Thr | Glu | Pro | Ile | Leu | Trp | Arg | Lys | Asp | Gln | His | His | His | Arg | Val | Glu | | |
| 135 | | | | | 140 | | | | | 145 | | | | 150 | | | |
| cag | ctg | acc | ctg | aat | ggc | ctc | ctg | cag | gct | ctt | cag | agc | ccc | tgc | atc | 774 | |
| Gln | Leu | Thr | Leu | Asn | Gly | Leu | Leu | Gln | Ala | Leu | Gln | Ser | Pro | Cys | Ile | | |
| | | | 155 | | | | | | 160 | | | | | 165 | | | |
| att | gaa | ggg | gaa | tct | ggc | aaa | ggc | aag | tcc | act | ctg | ctg | cag | cgc | att | 822 | |
| Ile | Glu | Gly | Glu | Ser | Gly | Lys | Gly | Lys | Ser | Thr | Leu | Leu | Gln | Arg | Ile | | |
| | | | 170 | | | | | 175 | | | | | | 180 | | | |
| gcc | atg | ctc | tgg | ggc | tcc | gga | aag | tgc | aag | gct | ctg | acc | aag | ttc | aaa | 870 | |
| Ala | Met | Leu | Trp | Gly | Ser | Gly | Lys | Cys | Lys | Ala | Leu | Thr | Lys | Phe | Lys | | |
| | | 185 | | | | | 190 | | | | | | 195 | | | | |
| ttc | gtc | ttc | ttc | ctc | cgt | ctc | agc | agg | gcc | cag | ggt | gga | ctt | ttt | gaa | 918 | |
| Phe | Val | Phe | Phe | Leu | Arg | Leu | Ser | Arg | Ala | Gln | Gly | Gly | Leu | Phe | Glu | | |
| | 200 | | | | | 205 | | | | | 210 | | | | | | |
| acc | ctc | tgt | gat | caa | ctc | ctg | gat | ata | cct | ggc | aca | atc | agg | aag | cag | 966 | |
| Thr | Leu | Cys | Asp | Gln | Leu | Leu | Asp | Ile | Pro | Gly | Thr | Ile | Arg | Lys | Gln | | |
| | 215 | | | | 220 | | | | | 225 | | | | | 230 | | |
| aca | ttc | atg | gcc | atg | ctg | ctg | aag | ctg | cgg | cag | agg | ggt | ctt | ttc | ctt | 1014 | |
| Thr | Phe | Met | Ala | Met | Leu | Leu | Lys | Leu | Arg | Gln | Arg | Val | Leu | Phe | Leu | | |
| | | | 235 | | | | | | 240 | | | | | 245 | | | |
| ctt | gat | ggc | tac | aat | gaa | ttc | aag | ccc | cag | aac | tgc | cca | gaa | atc | gaa | 1062 | |
| Leu | Asp | Gly | Tyr | Asn | Glu | Phe | Lys | Pro | Gln | Asn | Cys | Pro | Glu | Ile | Glu | | |
| | | | 250 | | | | | 255 | | | | | 260 | | | | |
| gcc | ctg | ata | aag | gaa | aac | cac | cgc | ttc | aag | aac | atg | gtc | atc | gtc | acc | 1110 | |
| Ala | Leu | Ile | Lys | Glu | Asn | His | Arg | Phe | Lys | Asn | Met | Val | Ile | Val | Thr | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| | 265 | | | | | 270 | | | | | 275 | | | | | |
| act | acc | act | gag | tgc | ctg | agg | cac | ata | cgg | cag | ttt | ggc | gcc | ctg | act | 1158 |
| Thr | Thr | Thr | Glu | Cys | Leu | Arg | His | Ile | Arg | Gln | Phe | Gly | Ala | Leu | Thr | |
| | 280 | | | | | 285 | | | | | 290 | | | | | |
| gct | gag | gtg | ggg | gat | atg | aca | gaa | gac | agc | gcc | cag | gct | ctc | atc | cga | 1206 |
| Ala | Glu | Val | Gly | Asp | Met | Thr | Glu | Asp | Ser | Ala | Gln | Ala | Leu | Ile | Arg | |
| 295 | | | | | 300 | | | | | 305 | | | | | 310 | |
| gaa | gtg | ctg | atc | aag | gag | ctt | gct | gaa | ggc | ttg | ttg | ctc | caa | att | cag | 1254 |
| Glu | Val | Leu | Ile | Lys | Glu | Leu | Ala | Glu | Gly | Leu | Leu | Leu | Gln | Ile | Gln | |
| | | | | 315 | | | | | 320 | | | | | 325 | | |
| aaa | tcc | agg | tgc | ttg | agg | aat | ctc | atg | aag | acc | cct | ctc | ttt | gtg | gtc | 1302 |
| Lys | Ser | Arg | Cys | Leu | Arg | Asn | Leu | Met | Lys | Thr | Pro | Leu | Phe | Val | Val | |
| | | | 330 | | | | | 335 | | | | | 340 | | | |
| atc | act | tgt | gca | atc | cag | atg | ggc | gaa | agt | gag | ttc | cac | tct | cac | aca | 1350 |
| Ile | Thr | Cys | Ala | Ile | Gln | Met | Gly | Glu | Ser | Glu | Phe | His | Ser | His | Thr | |
| | | 345 | | | | | 350 | | | | | 355 | | | | |
| caa | aca | acg | ctg | ttc | cat | acc | ttc | tat | gat | ctg | ttg | ata | cag | aaa | aac | 1398 |
| Gln | Thr | Thr | Leu | Phe | His | Thr | Phe | Tyr | Asp | Leu | Leu | Ile | Gln | Lys | Asn | |
| | 360 | | | | | 365 | | | | | 370 | | | | | |
| aaa | cac | aaa | cat | aaa | ggc | gtg | gct | gca | agt | gac | ttc | att | cgg | agc | ctg | 1446 |
| Lys | His | Lys | His | Lys | Gly | Val | Ala | Ala | Ser | Asp | Phe | Ile | Arg | Ser | Leu | |
| 375 | | | | | 380 | | | | | 385 | | | | | 390 | |
| gac | cac | cgt | gga | gac | cta | gct | ctg | gag | ggc | gtg | ttc | tcc | cac | aag | ttt | 1494 |
| Asp | His | Arg | Gly | Asp | Leu | Ala | Leu | Glu | Gly | Val | Phe | Ser | His | Lys | Phe | |
| | | | | 395 | | | | | 400 | | | | | 405 | | |
| gat | ttc | gaa | ctg | cag | gat | gtg | tcc | agc | gtg | aat | gag | gat | gtc | ctg | ctg | 1542 |
| Asp | Phe | Glu | Leu | Gln | Asp | Val | Ser | Ser | Val | Asn | Glu | Asp | Val | Leu | Leu | |
| | | | 410 | | | | | 415 | | | | | 420 | | | |
| aca | act | ggg | ctc | ctc | tgt | aaa | tat | aca | gct | caa | agg | ttc | aag | cca | aag | 1590 |
| Thr | Thr | Gly | Leu | Leu | Cys | Lys | Tyr | Thr | Ala | Gln | Arg | Phe | Lys | Pro | Lys | |
| | | 425 | | | | 430 | | | | | | 435 | | | | |
| tat | aaa | ttc | ttt | cac | aag | tca | ttc | cag | gag | tac | aca | gca | gga | cga | aga | 1638 |
| Tyr | Lys | Phe | Phe | His | Lys | Ser | Phe | Gln | Glu | Tyr | Thr | Ala | Gly | Arg | Arg | |
| | 440 | | | | | 445 | | | | | 450 | | | | | |
| ctc | agc | agt | tta | ttg | acg | tct | cat | gag | cca | gag | gag | gtg | acc | aag | ggg | 1686 |
| Leu | Ser | Ser | Leu | Leu | Thr | Ser | His | Glu | Pro | Glu | Glu | Val | Thr | Lys | Gly | |
| 455 | | | | | 460 | | | | | 465 | | | | | 470 | |
| aat | ggc | tac | ttg | cag | aaa | atg | gtt | tcc | att | tcg | gac | att | aca | tcc | act | 1734 |
| Asn | Gly | Tyr | Leu | Gln | Lys | Met | Val | Ser | Ile | Ser | Asp | Ile | Thr | Ser | Thr | |
| | | | | 475 | | | | | 480 | | | | | 485 | | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| tat | agc | agc | ctg | ctc | cgg | tac | acc | tgt | ggg | tca | tct | gtg | gaa | gcc | acc | 1782 |
| Tyr | Ser | Ser | Leu | Leu | Arg | Tyr | Thr | Cys | Gly | Ser | Ser | Val | Glu | Ala | Thr | |
| | | | 490 | | | | | 495 | | | | | 500 | | | |
| agg | gct | gtt | atg | aag | cac | ctc | gca | gca | gtg | tat | caa | cac | ggc | tgc | ctt | 1830 |
| Arg | Ala | Val | Met | Lys | His | Leu | Ala | Ala | Val | Tyr | Gln | His | Gly | Cys | Leu | |
| | | | 505 | | | | 510 | | | | | 515 | | | | |
| ctc | gga | ctt | tcc | atc | gcc | aag | agg | cct | ctc | tgg | aga | cag | gaa | tct | ttg | 1878 |
| Leu | Gly | Leu | Ser | Ile | Ala | Lys | Arg | Pro | Leu | Trp | Arg | Gln | Glu | Ser | Leu | |
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| Gln | Ser | Val | Lys | Asn | Thr | Thr | Glu | Gln | Glu | Ile | Leu | Lys | Ala | Ile | Asn | |
| 535 | | | | | 540 | | | | | 545 | | | | | 550 | |
| atc | aat | tcc | ttt | gta | gag | tgt | ggc | atc | cat | tta | tat | caa | gag | agt | aca | 1974 |
| Ile | Asn | Ser | Phe | Val | Glu | Cys | Gly | Ile | His | Leu | Tyr | Gln | Glu | Ser | Thr | |
| | | | | 555 | | | | 560 | | | | | | 565 | | |
| tcc | aaa | tca | gcc | ctg | agc | caa | gaa | ttt | gaa | gct | ttc | ttt | caa | ggc | aaa | 2022 |
| Ser | Lys | Ser | Ala | Leu | Ser | Gln | Glu | Phe | Glu | Ala | Phe | Phe | Gln | Gly | Lys | |
| | | | 570 | | | | 575 | | | | | | 580 | | | |
| agc | tta | tat | atc | aac | tca | ggg | aac | atc | ccc | gat | tac | tta | ttt | gac | ttc | 2070 |
| Ser | Leu | Tyr | Ile | Asn | Ser | Gly | Asn | Ile | Pro | Asp | Tyr | Leu | Phe | Asp | Phe | |
| | | | 585 | | | | 590 | | | | | 595 | | | | |
| ttt | gaa | cat | ttg | ccc | aat | tgt | gca | agt | gcc | ctg | gac | ttc | att | aaa | ctg | 2118 |
| Phe | Glu | His | Leu | Pro | Asn | Cys | Ala | Ser | Ala | Leu | Asp | Phe | Ile | Lys | Leu | |
| | | | 600 | | | 605 | | | | | 610 | | | | | |
| gac | ttt | tat | ggg | gga | gct | atg | gct | tca | tgg | gaa | aag | gct | gca | gaa | gac | 2166 |
| Asp | Phe | Tyr | Gly | Gly | Ala | Met | Ala | Ser | Trp | Glu | Lys | Ala | Ala | Glu | Asp | |
| 615 | | | | | 620 | | | | | 625 | | | | | 630 | |
| aca | ggc | gga | atc | cac | atg | gaa | gag | gcc | cca | gaa | acc | tac | att | ccc | agc | 2214 |
| Thr | Gly | Gly | Ile | His | Met | Glu | Glu | Ala | Pro | Glu | Thr | Tyr | Ile | Pro | Ser | |
| | | | | 635 | | | | 640 | | | | | | 645 | | |
| agg | gct | gta | tct | ttg | ttc | ttc | aac | tgg | aag | cag | gaa | ttc | agg | act | ctg | 2262 |
| Arg | Ala | Val | Ser | Leu | Phe | Phe | Asn | Trp | Lys | Gln | Glu | Phe | Arg | Thr | Leu | |
| | | | 650 | | | | | 655 | | | | 660 | | | | |
| gag | gtc | aca | ctc | cgg | gat | ttc | agc | aag | ttg | aat | aag | caa | gat | atc | aga | 2310 |
| Glu | Val | Thr | Leu | Arg | Asp | Phe | Ser | Lys | Leu | Asn | Lys | Gln | Asp | Ile | Arg | |
| | | | 665 | | | | 670 | | | | | 675 | | | | |
| tat | ctg | ggg | aaa | ata | ttc | agc | tct | gcc | aca | agc | ctc | agg | ctg | caa | ata | 2358 |
| Tyr | Leu | Gly | Lys | Ile | Phe | Ser | Ser | Ala | Thr | Ser | Leu | Arg | Leu | Gln | Ile | |
| | | | 680 | | | 685 | | | | | 690 | | | | | |

aag aga tgt gct ggt gtg gct gga agc ctc agt ttg gtc ctc agc acc 2406
 Lys Arg Cys Ala Gly Val Ala Gly Ser Leu Ser Leu Val Leu Ser Thr
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 Cys Lys Asn Ile Tyr Ser Leu Met Val Glu Ala Ser Pro Leu Thr Ile
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 760 765 770
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 Met Asn Glu Glu Asp Ala Ile Lys Leu Ala Glu Gly Leu Lys Asn Leu
 775 780 785 790
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 Lys Lys Met Cys Leu Phe His Leu Thr His Leu Ser Asp Ile Gly Glu
 795 800 805
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 Gly Met Asp Tyr Ile Val Lys Ser Leu Ser Ser Glu Pro Cys Asp Leu
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 Glu Glu Ile Gln Leu Val Ser Cys Cys Leu Ser Ala Asn Ala Val Lys
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 Ile Leu Ala Gln Asn Leu His Asn Leu Val Lys Leu Ser Ile Leu Asp
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| | | | | | | | | | | | | | | | | | |
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| Leu | Glu | Glu | Val | Pro | Gln | Leu | Val | Lys | Leu | Gly | Leu | Lys | Asn | Trp | Arg | | |
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| cct | ctg | aaa | aac | ttc | cag | cag | ttg | aat | ttg | gcg | gga | aat | cgt | gtg | agc | 3126 | |
| Pro | Leu | Lys | Asn | Phe | Gln | Gln | Leu | Asn | Leu | Ala | Gly | Asn | Arg | Val | Ser | | |
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| Ser | Asp | Gly | Trp | Leu | Ala | Phe | Met | Gly | Val | Phe | Glu | Asn | Leu | Lys | Gln | | |
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| Leu | Gln | Ser | Pro | Cys | Ile | Ile | Glu | Gly | Glu | Ser | Gly | Lys | Gly | Lys | Ser |
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| Asn | Cys | Pro | Glu | Ile | Glu | Ala | Leu | Ile | Lys | Glu | Asn | His | Arg | Phe | Lys |
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| Asn | Met | Val | Ile | Val | Thr | Thr | Thr | Thr | Glu | Cys | Leu | Arg | His | Ile | Arg |
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| Ala | Gln | Ala | Leu | Ile | Arg | Glu | Val | Leu | Ile | Lys | Glu | Leu | Ala | Glu | Gly |
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| Val | Phe | Ser | His | Lys | Phe | Asp | Phe | Glu | Leu | Gln | Asp | Val | Ser | Ser | Val |
| | | | | 405 | | | | 410 | | | | | | 415 | |
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| Gln | Arg | Phe | Lys | Pro | Lys | Tyr | Lys | Phe | Phe | His | Lys | Ser | Phe | Gln | Glu |
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| Trp | Arg | Gln | Glu | Ser | Leu | Gln | Ser | Val | Lys | Asn | Thr | Thr | Glu | Gln | Glu |

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| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
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| Leu | Tyr | Gln | Glu | Ser | Thr | Ser | Lys | Ser | Ala | Leu | Ser | Gln | Glu | Phe | Glu | | | | |
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| Glu | Thr | Tyr | Ile | Pro | Ser | Arg | Ala | Val | Ser | Leu | Phe | Phe | Asn | Trp | Lys | | | | |
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| | | 755 | | | | | 760 | | | | | 765 | | | | | | | |
| Ile | Met | Asp | Asn | Ile | Lys | Met | Asn | Glu | Glu | Asp | Ala | Ile | Lys | Leu | Ala | | | | |
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| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | | | |
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| | | | 805 | | | | | | 810 | | | | | | 815 | | | | |
| Ser | Glu | Pro | Cys | Asp | Leu | Glu | Glu | Ile | Gln | Leu | Val | Ser | Cys | Cys | Leu | | | | |
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Phe Leu Pro Asp Pro Ala Leu Val Arg Lys Leu Ser Gln Val Leu Ser
980 985 990
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| His | Leu | Ser | Asp | Ile | Gly | Glu | Gly | Met | Asp | Tyr | Ile | Val | Lys | Ser | Leu | |
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| Ser | Ser | Glu | Pro | Cys | Asp | Leu | Glu | Glu | Ile | Gln | Leu | Val | Ser | Cys | Cys | |
| | | | | 155 | | | | | 160 | | | | | 165 | | |
| ttg | tct | gca | aat | gca | gtg | aaa | atc | cta | gct | cag | aat | ctt | cac | aat | ttg | 822 |
| Leu | Ser | Ala | Asn | Ala | Val | Lys | Ile | Leu | Ala | Gln | Asn | Leu | His | Asn | Leu | |
| | | | 170 | | | | | 175 | | | | | 180 | | | |
| gtc | aaa | ctg | agc | att | ctt | gat | tta | tca | gaa | aat | tac | ctg | gaa | aaa | gat | 870 |
| Val | Lys | Leu | Ser | Ile | Leu | Asp | Leu | Ser | Glu | Asn | Tyr | Leu | Glu | Lys | Asp | |
| | | 185 | | | | | 190 | | | | | 195 | | | | |
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| Gly | Asn | Glu | Ala | Leu | His | Glu | Leu | Ile | Asp | Arg | Met | Asn | Val | Leu | Glu | |
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| ctg | agc | agc | ctg | ttg | aaa | cat | ttg | gag | gag | gtc | cca | caa | ctc | gtc | aag | 1014 |
| Leu | Ser | Ser | Leu | Leu | Lys | His | Leu | Glu | Glu | Val | Pro | Gln | Leu | Val | Lys | |
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| ctt | ggg | ttg | aaa | aac | tgg | aga | ctc | aca | gat | aca | gag | att | aga | att | tta | 1062 |
| Leu | Gly | Leu | Lys | Asn | Trp | Arg | Leu | Thr | Asp | Thr | Glu | Ile | Arg | Ile | Leu | |
| | | | 250 | | | | | 255 | | | | | 260 | | | |
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| Gly | Ala | Phe | Phe | Gly | Lys | Asn | Pro | Leu | Lys | Asn | Phe | Gln | Gln | Leu | Asn | |
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| Val | Phe | Glu | Asn | Leu | Lys | Gln | Leu | Val | Phe | Phe | Asp | Phe | Ser | Thr | Lys | |
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| gaa | ttt | cta | cct | gat | cca | gca | tta | gtc | aga | aaa | ctt | agc | caa | gtg | tta | 1254 |
| Glu | Phe | Leu | Pro | Asp | Pro | | | | | | | | | | | |

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Ser Lys Leu Thr Phe Leu Gln Glu Ala Arg Leu Val Gly Trp Gln Phe
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gat gat gat gat ctc agt gtt att aca ggt gct ttt aaa cta gta act 1350
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Asp Ala Ala Arg Gly Ile Ile His Met Ile Leu Lys Lys Gly Ser Glu
          50          55          60
Ser Cys Asn Leu Phe Leu Lys Ser Leu Lys Glu Trp Asn Tyr Pro Leu
          65          70          75          80
Phe Gln Asp Leu Asn Gly Gln Ser Gly Leu Thr Asp Ser Leu Gly Asn
          85          90          95
Leu Lys Asn Leu Thr Lys Leu Ile Met Asp Asn Ile Lys Met Asn Glu
          100          105          110
Glu Asp Ala Ile Lys Leu Ala Glu Gly Leu Lys Asn Leu Lys Lys Met
          115          120          125
Cys Leu Phe His Leu Thr His Leu Ser Asp Ile Gly Glu Gly Met Asp
          130          135          140
Tyr Ile Val Lys Ser Leu Ser Ser Glu Pro Cys Asp Leu Glu Glu Ile
          145          150          155          160
Gln Leu Val Ser Cys Cys Leu Ser Ala Asn Ala Val Lys Ile Leu Ala
          165          170          175
Gln Asn Leu His Asn Leu Val Lys Leu Ser Ile Leu Asp Leu Ser Glu
          180          185          190
Asn Tyr Leu Glu Lys Asp Gly Asn Glu Ala Leu His Glu Leu Ile Asp
          195          200          205
Arg Met Asn Val Leu Glu Gln Leu Thr Ala Leu Met Leu Pro Trp Gly
          210          215          220
Cys Asp Val Gln Gly Ser Leu Ser Ser Leu Leu Lys His Leu Glu Glu
          225          230          235          240
Val Pro Gln Leu Val Lys Leu Gly Leu Lys Asn Trp Arg Leu Thr Asp
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Thr Glu Ile Arg Ile Leu Gly Ala Phe Phe Gly Lys Asn Pro Leu Lys
 260 265 270
 Asn Phe Gln Gln Leu Asn Leu Ala Gly Asn Arg Val Ser Ser Asp Gly
 275 280 285
 Trp Leu Ala Phe Met Gly Val Phe Glu Asn Leu Lys Gln Leu Val Phe
 290 295 300
 Phe Asp Phe Ser Thr Lys Glu Phe Leu Pro Asp Pro Ala Leu Val Arg
 305 310 315 320
 Lys Leu Ser Gln Val Leu Ser Lys Leu Thr Phe Leu Gln Glu Ala Arg
 325 330 335
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 aaaagaggac aatattggga tcacctttga cttttccatt tggaaataat attttctatt 240
 gtgttataga aagggtgggaa gctttcatcc agaaca atg aat ttc ata aag gac 294
 Met Asn Phe Ile Lys Asp
 1 5
 aat agc cga gcc ctt att caa aga atg gga atg act gtt ata aag caa 342
 Asn Ser Arg Ala Leu Ile Gln Arg Met Gly Met Thr Val Ile Lys Gln
 10 15 20
 atc aca gat gac cta ttt gta tgg aat gtt ctg aat cgc gaa gaa gta 390
 Ile Thr Asp Asp Leu Phe Val Trp Asn Val Leu Asn Arg Glu Glu Val
 25 30 35
 aac atc att tgc tgc gag aag gtg gag cag gat gct gct aga ggg atc 438
 Asn Ile Ile Cys Cys Glu Lys Val Glu Gln Asp Ala Ala Arg Gly Ile
 40 45 50
 att cac atg att ttg aaa aag ggt tca gag tcc tgt aac ctc ttt ctt 486
 Ile His Met Ile Leu Lys Lys Gly Ser Glu Ser Cys Asn Leu Phe Leu
 55 60 65 70
 aaa tcc ctt aag gag tgg aac tat cct cta ttt cag gac ttg aat gga 534
 Lys Ser Leu Lys Glu Trp Asn Tyr Pro Leu Phe Gln Asp Leu Asn Gly
 75 80 85

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578

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| Met | Thr | Val | Ile | Lys | Gln | Ile | Thr | Asp | Asp | Leu | Phe | Val | Trp | Asn | Val |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Asn | Arg | Glu | Glu | Val | Asn | Ile | Ile | Cys | Cys | Glu | Lys | Val | Glu | Gln |
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| Asp | Ala | Ala | Arg | Gly | Ile | Ile | His | Met | Ile | Leu | Lys | Lys | Gly | Ser | Glu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ser | Cys | Asn | Leu | Phe | Leu | Lys | Ser | Leu | Lys | Glu | Trp | Asn | Tyr | Pro | Leu |
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Ile His Met Ile Leu Lys Lys Gly Ser Glu Ser Cys Asn Leu Phe Leu
55 60 65 70

aaa tcc ctt aag gag tgg aac tat cct cta ttt cag gac ttg aat gga 534
Lys Ser Leu Lys Glu Trp Asn Tyr Pro Leu Phe Gln Asp Leu Asn Gly
75 80 85

caa agt ctt ttt cat cag aca tca gaa gga gac ttg gac gat ttg gct 582
Gln Ser Leu Phe His Gln Thr Ser Glu Gly Asp Leu Asp Asp Leu Ala
90 95 100

cag gat tta aag gac ttg tac cat acc cca tct ttt ctg aac ttt tat 630
Gln Asp Leu Lys Asp Leu Tyr His Thr Pro Ser Phe Leu Asn Phe Tyr
105 110 115

ccc ctt ggt gaa gat att gac att att ttt aac ttg aaa agc acc ttc 678
Pro Leu Gly Glu Asp Ile Asp Ile Ile Phe Asn Leu Lys Ser Thr Phe
120 125 130

aca gaa cct gtc ctg tgg agg aag gac caa cac cat cac cgc gtg gag 726
Thr Glu Pro Val Leu Trp Arg Lys Asp Gln His His His Arg Val Glu
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Gln Leu Thr Leu Val Leu
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Leu Asn Arg Glu Glu Val Asn Ile Cys Cys Glu Lys Val Glu Gln
35 40 45
Asp Ala Ala Arg Gly Ile Ile His Met Ile Leu Lys Lys Gly Ser Glu
50 55 60
Ser Cys Asn Leu Phe Leu Lys Ser Leu Lys Glu Trp Asn Tyr Pro Leu
65 70 75 80
Phe Gln Asp Leu Asn Gly Gln Ser Leu Phe His Gln Thr Ser Glu Gly
85 90 95
Asp Leu Asp Asp Leu Ala Gln Asp Leu Lys Asp Leu Tyr His Thr Pro
100 105 110
Ser Phe Leu Asn Phe Tyr Pro Leu Gly Glu Asp Ile Asp Ile Ile Phe

030304301 030304301

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| Val | Glu | Leu | Leu | Val | Ser | Gly | Ser | Leu | Glu | Gly | Phe | Glu | Ser | Val | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Asp | Trp | Leu | Leu | Ser | Trp | Glu | Val | Leu | Ser | Trp | Glu | Asp | Tyr | Glu | Gly |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Phe | His | Leu | Leu | Gly | Gln | Pro | Leu | Ser | His | Leu | Ala | Arg | Arg | Leu | Leu |

| | | | | | | | | | | | | | | | | |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
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| Asp 65 | Thr | Val | Trp | Asn | Lys | Gly | Thr | Trp | Ala | Cys | Gln | Lys | Leu | Ile | Ala | |
| | | | | | 70 | | | | | 75 | | | | | 80 | |
| Ala | Ala | Gln | Glu | Ala | Gln | Ala | Asp | Ser | Gln | Ser | Pro | Lys | Leu | His | Gly | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Cys | Trp | Asp | Pro | His | Ser | Leu | His | Pro | Ala | Arg | Asp | Leu | Gln | Ser | His | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Arg | Pro | Ala | Ile | Val | Arg | Arg | Leu | His | Ser | His | Val | Glu | Asn | Met | Leu | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Asp | Leu | Ala | Trp | Glu | Arg | Gly | Phe | Val | Ser | Gln | Tyr | Glu | Cys | Asp | Glu | |
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| Ile | Arg | Leu | Pro | Ile | Phe | Thr | Pro | Ser | Gln | Arg | Ala | Arg | Arg | Leu | Leu | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Asp | Leu | Ala | Thr | Val | Lys | Ala | Asn | Gly | Leu | Ala | Ala | Phe | Leu | Leu | Gln | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| His | Val | Gln | Glu | Leu | Pro | Val | Pro | Leu | Ala | Leu | Pro | Leu | Glu | Ala | Ala | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| Thr | Cys | Lys | Lys | Tyr | Met | Ala | Lys | Leu | Arg | Thr | Thr | Val | Ser | Ala | Gln | |
| | | 195 | | | | | 200 | | | | | 205 | | | | |
| Ser | Arg | Phe | Leu | Ser | Thr | Tyr | Asp | Gly | Ala | Glu | Thr | Leu | Cys | Leu | Glu | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Asp | Ile | Tyr | Thr | Glu | Asn | Val | Leu | Glu | Val | Trp | Ala | Asp | Val | Gly | Met | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Ala | Gly | Pro | Pro | Gln | Lys | Ser | Pro | Ala | Thr | Leu | Gly | Leu | Glu | Glu | Leu | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Phe | Ser | Thr | Pro | Gly | His | Leu | Asn | Asp | Asp | Ala | Asp | Thr | Val | Leu | Val | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Val | Gly | Glu | Ala | Gly | Ser | Gly | Lys | Ser | Thr | Leu | Leu | Gln | Arg | Leu | His | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Leu | Leu | Trp | Ala | Ala | Gly | Gln | Asp | Phe | Gln | Glu | Phe | Leu | Phe | Val | Phe | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Pro | Phe | Ser | Cys | Arg | Gln | Leu | Gln | Cys | Met | Ala | Lys | Pro | Leu | Ser | Val | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Arg | Thr | Leu | Leu | Phe | Glu | His | Cys | Cys | Trp | Pro | Asp | Val | Gly | Gln | Glu | |
| | | | | 325 | | | | | 330 | | | | | 335 | | |
| Asp | Ile | Phe | Gln | Leu | Leu | Leu | Asp | His | Pro | Asp | Arg | Val | Leu | Leu | Thr | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| Phe | Asp | Gly | Phe | Asp | Glu | Phe | Lys | Phe | Arg | Phe | Thr | Asp | Arg | Glu | Arg | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| His | Cys | Ser | Pro | Thr | Asp | Pro | Thr | Ser | Val | Gln | Thr | Leu | Leu | Phe | Asn | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Leu | Leu | Gln | Gly | Asn | Leu | Leu | Lys | Asn | Ala | Arg | Lys | Val | Val | Thr | Ser | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| Arg | Pro | Ala | Ala | Val | Ser | Ala | Phe | Leu | Arg | Lys | Tyr | Ile | Arg | Thr | Glu | |
| | | | | 405 | | | | </ | | | | | | | | |

Ser Pro Lys Thr Thr Asp Met Tyr Leu Leu Ile Leu Gln His Phe
 485 490 495
 Leu Leu His Ala Thr Pro Pro Asp Ser Ala Ser Gln Gly Leu Gly Pro
 500 505 510
 Ser Leu Leu Arg Gly Arg Leu Pro Thr Leu Leu His Leu Gly Arg Leu
 515 520 525
 Ala Leu Trp Gly Leu Gly Met Cys Cys Tyr Val Phe Ser Ala Gln Gln
 530 535 540
 Leu Gln Ala Ala Gln Val Ser Pro Asp Asp Ile Ser Leu Gly Phe Leu
 545 550 555 560
 Val Arg Ala Lys Gly Val Val Pro Gly Ser Thr Ala Pro Leu Glu Phe
 565 570 575
 Leu His Ile Thr Phe Gln Cys Phe Phe Ala Ala Phe Tyr Leu Ala Leu
 580 585 590
 Ser Ala Asp Val Pro Pro Ala Leu Leu Arg His Leu Phe Asn Cys Gly
 595 600 605
 Arg Pro Gly Asn Ser Pro Met Ala Arg Leu Leu Pro Thr Met Cys Ile
 610 615 620
 Gln Ala Ser Glu Gly Lys Asp Ser Ser Val Ala Ala Leu Leu Gln Lys
 625 630 635 640
 Ala Glu Pro His Asn Leu Gln Ile Thr Ala Ala Phe Leu Ala Gly Leu
 645 650 655
 Leu Ser Arg Glu His Trp Gly Leu Leu Ala Glu Cys Gln Thr Ser Glu
 660 665 670
 Lys Ala Leu Leu Arg Arg Gln Ala Cys Ala Arg Trp Cys Leu Ala Arg
 675 680 685
 Ser Leu Arg Lys His Phe His Ser Ile Pro Pro Ala Ala Pro Gly Glu
 690 695 700
 Ala Lys Ser Val His Ala Met Pro Gly Phe Ile Trp Leu Ile Arg Ser
 705 710 715 720
 Leu Tyr Glu Met Gln Glu Glu Arg Leu Ala Arg Lys Ala Ala Arg Gly
 725 730 735
 Leu Asn Val Gly His Leu Lys Leu Thr Phe Cys Ser Val Gly Pro Thr
 740 745 750
 Glu Cys Ala Ala Leu Ala Phe Val Leu Gln His Leu Arg Arg Pro Val
 755 760 765
 Ala Leu Gln Leu Asp Tyr Asn Ser Val Gly Asp Ile Gly Val Glu Gln
 770 775 780
 Leu Leu Pro Cys Leu Gly Val Cys Lys Ala Leu Tyr Leu Arg Asp Asn
 785 790 795 800
 Asn Ile Ser Asp Arg Gly Ile Cys Lys Leu Ile Glu Cys Ala Leu His
 805 810 815
 Cys Glu Gln Leu Gln Lys Leu Ala Leu Gly Asn Asn Tyr Ile Thr Ala
 820 825 830
 Ala Gly Ala Gln Val Leu Ala Glu Gly Leu Arg Gly Asn Thr Ser Leu
 835 840 845
 Gln Phe Leu Gly Phe Trp Gly Asn Arg Val Gly Asp Glu Gly Ala Gln
 850 855 860
 Ala Leu Ala Glu Ala Leu Gly Asp His Gln Ser Leu Arg Trp Leu Ser
 865 870 875 880
 Leu Val Gly Asn Asn Ile Gly Ser Val Gly Ala Gln Ala Leu Ala Leu
 885 890 895
 Met Leu Ala Lys Asn Val Met Leu Glu Glu Leu Cys Leu Glu Glu Asn

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His Leu Gln Asp Glu Gly Val Cys Ser Leu Ala Glu Gly Leu Lys Lys
915 920 925
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930 935 940
Asn Lys Leu Leu Glu Ser Ile Phe Cys Ile Leu Leu Val Val Glu Ala
945 950 955 960
Phe Phe Leu Gln Lys Val Val Lys Ile Leu Glu Glu Met Val Val Ser
965 970 975
Trp Leu Glu Val Arg Leu Ser Asn Asn Cys Ile Thr Tyr Leu Gly Ala
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Trp

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<210> 152

<211> 38

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catgtgaatg atccctctag cag 23

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Sequence of the gene

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cgg agg ctg att tct gag gaa gag tat gag act ctg gag aat gtt aca 144
 Arg Arg Leu Ile Ser Glu Glu Glu Tyr Glu Thr Leu Glu Asn Val Thr
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gga gag gcg acc tgt cag cat ttt ctc aag tgt 225
Gly Glu Ala Thr Cys Gln His Phe Leu Lys Cys

65 70 75

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ctg ctg gtc tca ggg tcc ctg gaa ggc ttc gag agt gtc ctg gac tgg 96
Leu Leu Val Ser Gly Ser Leu Glu Gly Phe Glu Ser Val Leu Asp Trp
20 25 30
ctg ctg tcc tgg gag gtc ctc tcc tgg gag gac tac gag ggc ttc cac 144
Leu Leu Ser Trp Glu Val Leu Ser Trp Glu Asp Tyr Glu Gly Phe His
35 40 45
ctc ctg ggc cag cct ctc tcc cac ttg gcc agg cgc ctt ctg gac acc 192
Leu Leu Gly Gln Pro Leu Ser His Leu Ala Arg Arg Leu Leu Asp Thr
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gtc tgg aat aag ggt act tgg gcc tgt cag aag ctc 228
Val Trp Asn Lys Gly Thr Trp Ala Cys Gln Lys Leu
65 70 75

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090649.050.F254950

<210> 172

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| Asp | Asp | Ala | Asp | Thr | Val | Leu | Val | Val | Gly | Glu | Ala | Gly | Ser | Gly | Lys | | |
| 1 | | | | 5 | | | | 10 | | | | 15 | | | | | |
| | | | | | | | | | | | | | | | | | |
| agc | acg | ctc | ctg | cag | cgg | ctg | cac | ttg | ctg | tgg | gct | gca | ggg | caa | gac | 96 | |
| Ser | Thr | Leu | Leu | Gln | Arg | Leu | His | Leu | Leu | Trp | Ala | Ala | Gly | Gln | Asp | | |
| 20 | | | | 25 | | | | 30 | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| ttc | cag | gaa | ttt | ctc | ttt | gtc | ttc | cca | ttc | agc | tgc | cgg | cag | ctg | cag | 144 | |
| Phe | Gln | Glu | Phe | Leu | Phe | Val | Phe | Pro | Phe | Ser | Cys | Arg | Gln | Leu | Gln | | |
| 35 | | | | 40 | | | | 45 | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| tgc | atg | gcc | aaa | cca | ctc | tct | gtg | cgg | act | cta | ctc | ttt | gag | cac | tgc | 192 | |
| Cys | Met | Ala | Lys | Pro | Leu | Ser | Val | Arg | Thr | Leu | Leu | Phe | Glu | His | Cys | | |
| 50 | | | | 55 | | | | 60 | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| tgt | tgg | cct | gat | gtt | ggt | caa | gaa | gac | atc | ttc | cag | tta | ctc | ctt | gac | 240 | |
| Cys | Trp | Pro | Asp | Val | Gly | Gln | Glu | Asp | Ile | Phe | Gln | Leu | Leu | Leu | Asp | | |
| 65 | | | | 70 | | | | 75 | | | | 80 | | | | | |
| | | | | | | | | | | | | | | | | | |
| cac | cct | gac | cgt | gtc | ctg | tta | acc | ttt | gat | ggc | ttt | gac | gag | ttc | aag | 288 | |
| His | Pro | Asp | Arg | Val | Leu | Leu | Thr | Phe | Asp | Gly | Phe | Asp | Glu | Phe | Lys | | |
| 85 | | | | 90 | | | | 95 | | | | | | | | | |

| | |
|---|-----|
| ttc agg ttc acg gat cgt gaa cgc cac tgc tcc ccg acc gac ccc acc | 336 |
| Phe Arg Phe Thr Asp Arg Glu Arg His Cys Ser Pro Thr Asp Pro Thr | |
| 100 105 110 | |
| tct gtc cag acc ctg ctc ttc aac ctt ctg cag ggc aac ctg ctg aag | 384 |
| Ser Val Gln Thr Leu Leu Phe Asn Leu Leu Gln Gly Asn Leu Leu Lys | |
| 115 120 125 | |
| aat gcc cgc aag gtg gtg acc agc cgt ccg gcc gct gtg tcg gcg ttc | 432 |
| Asn Ala Arg Lys Val Val Thr Ser Arg Pro Ala Ala Val Ser Ala Phe | |
| 130 135 140 | |
| ctc agg aag tac atc cgc acc gag ttc aac ctc aag ggc ttc tct gaa | 480 |
| Leu Arg Lys Tyr Ile Arg Thr Glu Phe Asn Leu Lys Gly Phe Ser Glu | |
| 145 150 155 160 | |
| cag ggc atc gag ctg tac ctg agg aag cgc cat cat gag ccc ggg gtg | 528 |
| Gln Gly Ile Glu Leu Tyr Leu Arg Lys Arg His His Glu Pro Gly Val | |
| 165 170 175 | |
| gcg gac cgc ctc atc cgc ctg ctc caa gag acc tca gcc ctg cac ggt | 576 |
| Ala Asp Arg Leu Ile Arg Leu Leu Gln Glu Thr Ser Ala Leu His Gly | |
| 180 185 190 | |
| ttg tgc cac ctg cct gtc ttc tca tgg atg gtg tcc aaa tgc cac cag | 624 |
| Leu Cys His Leu Pro Val Phe Ser Trp Met Val Ser Lys Cys His Gln | |
| 195 200 205 | |
| gaa ctg ttg ctg cag gag ggg ggg tcc cca aag acc act aca gat atg | 672 |
| Glu Leu Leu Leu Gln Glu Gly Gly Ser Pro Lys Thr Thr Thr Asp Met | |
| 210 215 220 | |
| tac ctg ctg att ctg cag cat ttt ctg ctg cat gcc acc ccc cca gac | 720 |
| Tyr Leu Leu Ile Leu Gln His Phe Leu Leu His Ala Thr Pro Pro Asp | |
| 225 230 235 240 | |
| tca gct tcc caa ggt ctg gga ccc agt ctt ctt cgg ggc cgc ctc ccc | 768 |
| Ser Ala Ser Gln Gly Leu Gly Pro Ser Leu Leu Arg Gly Arg Leu Pro | |
| 245 250 255 | |
| acc ctc ctg cac ctg ggc aga ctg gct ctg tgg ggc ctg ggc atg tgc | 816 |
| Thr Leu Leu His Leu Gly Arg Leu Ala Leu Trp Gly Leu Gly Met Cys | |
| 260 265 270 | |
| tgc tac gtg ttc tca gcc cag cag ctc cag gca gca cag gtc agc cct | 864 |
| Cys Tyr Val Phe Ser Ala Gln Gln Leu Gln Ala Ala Gln Val Ser Pro | |
| 275 280 285 | |
| gat gac att tct ctt ggc ttc ctg | 888 |
| Asp Asp Ile Ser Leu Gly Phe Leu | |
| 290 295 | |

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<400> 174

<210> 175

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(1209)

<400> 175

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| gag ccc ggg gtg gcg gac cgc ctc atc cgc ctg ctc caa gag acc tca | 48 |
| Glu Pro Gly Val Ala Asp Arg Leu Ile Arg Leu Leu Gln Glu Thr Ser | |
| 1 5 10 15 | |
| gcc ctg cac ggt ttg tgc cac ctg cct gtc ttc tca tgg atg gtg tcc | 96 |
| Ala Leu His Gly Leu Cys His Leu Pro Val Phe Ser Trp Met Val Ser | |
| 20 25 30 | |
| aaa tgc cac cag gaa ctg ttg ctg cag gag ggg ggg tcc cca aag acc | 144 |
| Lys Cys His Gln Glu Leu Leu Leu Gln Glu Gly Gly Ser Pro Lys Thr | |
| 35 40 45 | |
| act aca gat atg tac ctg ctg att ctg cag cat ttt ctg ctg cat gcc | 192 |
| Thr Thr Asp Met Tyr Leu Leu Ile Leu Gln His Phe Leu Leu His Ala | |
| 50 55 60 | |
| acc ccc cca gac tca gct tcc caa ggt ctg gga ccc agt ctt ctt cgg | 240 |
| Thr Pro Pro Asp Ser Ala Ser Gln Gly Leu Gly Pro Ser Leu Leu Arg | |
| 65 70 75 80 | |
| ggc cgc ctc ccc acc ctc ctg cac ctg ggc aga ctg gct ctg tgg ggc | 288 |
| Gly Arg Leu Pro Thr Leu Leu His Leu Gly Arg Leu Ala Leu Trp Gly | |
| 85 90 95 | |
| ctg ggc atg tgc tgc tac gtg ttc tca gcc cag cag ctc cag gca gca | 336 |
| Leu Gly Met Cys Cys Tyr Val Phe Ser Ala Gln Gln Leu Gln Ala Ala | |
| 100 105 110 | |
| cag gtc agc cct gat gac att tct ctt ggc ttc ctg gtg cgt gcc aaa | 384 |
| Gln Val Ser Pro Asp Asp Ile Ser Leu Gly Phe Leu Val Arg Ala Lys | |
| 115 120 125 | |
| ggc gtc gtg cca ggg agt acg gcg ccc ctg gaa ttc ctt cac atc act | 432 |
| Gly Val Val Pro Gly Ser Thr Ala Pro Leu Glu Phe Leu His Ile Thr | |
| 130 135 140 | |
| ttc cag tgc ttc ttt gcc gcg ttc tac ctg gca ctc agt gct gat gtg | 480 |
| Phe Gln Cys Phe Phe Ala Ala Phe Tyr Leu Ala Leu Ser Ala Asp Val | |
| 145 150 155 160 | |
| cca cca gct ttg ctc aga cac ctc ttc aat tgt ggc agg cca ggc aac | 528 |
| Pro Pro Ala Leu Leu Arg His Leu Phe Asn Cys Gly Arg Pro Gly Asn | |
| 165 170 175 | |
| tca cca atg gcc agg ctc ctg ccc acg atg tgc atc cag gcc tcg gag | 576 |
| Ser Pro Met Ala Arg Leu Leu Pro Thr Met Cys Ile Gln Ala Ser Glu | |
| 180 185 190 | |
| gga aag gac agc agc gtg gca gct ttg ctg cag aag gcc gag ccg cac | 624 |
| Gly Lys Asp Ser Ser Val Ala Ala Leu Leu Gln Lys Ala Glu Pro His | |

09864931.052304

| 195 | | | | | 200 | | | | | 205 | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| aac | ctt | cag | atc | aca | gca | gcc | ttc | ctg | gca | ggg | ctg | ttg | tcc | cgg | gag | 672 |
| Asn | Leu | Gln | Ile | Thr | Ala | Ala | Phe | Leu | Ala | Gly | Leu | Leu | Ser | Arg | Glu | |
| 210 | | | | | 215 | | | | | 220 | | | | | | |
| cac | tgg | ggc | ctg | ctg | gct | gag | tgc | cag | aca | tct | gag | aag | gcc | ctg | ctc | 720 |
| His | Trp | Gly | Leu | Leu | Ala | Glu | Cys | Gln | Thr | Ser | Glu | Lys | Ala | Leu | Leu | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| cgg | cgc | cag | gcc | tgt | gcc | cgc | tgg | tgt | ctg | gcc | cgc | agc | ctc | cgc | aag | 768 |
| Arg | Arg | Gln | Ala | Cys | Ala | Arg | Trp | Cys | Leu | Ala | Arg | Ser | Leu | Arg | Lys | |
| 245 | | | | | 250 | | | | | 255 | | | | | | |
| cac | ttc | cac | tcc | atc | ccg | cca | gct | gca | ccg | ggg | gag | gcc | aag | agc | gtg | 816 |
| His | Phe | His | Ser | Ile | Pro | Pro | Ala | Ala | Pro | Gly | Glu | Ala | Lys | Ser | Val | |
| 260 | | | | | 265 | | | | | 270 | | | | | | |
| cat | gcc | atg | ccc | ggg | ttc | atc | tgg | ctc | atc | cgg | agc | ctg | tac | gag | atg | 864 |
| His | Ala | Met | Pro | Gly | Phe | Ile | Trp | Leu | Ile | Arg | Ser | Leu | Tyr | Glu | Met | |
| 275 | | | | | 280 | | | | | 285 | | | | | | |
| cag | gag | gag | cgg | ctg | gct | cgg | aag | gct | gca | cgt | ggc | ctg | aat | gtt | ggg | 912 |
| Gln | Glu | Glu | Arg | Leu | Ala | Arg | Lys | Ala | Ala | Arg | Gly | Leu | Asn | Val | Gly | |
| 290 | | | | | 295 | | | | | 300 | | | | | | |
| cac | ctc | aag | ttg | aca | ttt | tgc | agt | gtg | ggc | ccc | act | gag | tgt | gct | gcc | 960 |
| His | Leu | Lys | Leu | Thr | Phe | Cys | Ser | Val | Gly | Pro | Thr | Glu | Cys | Ala | Ala | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| ctg | gcc | ttt | gtg | ctg | cag | cac | ctc | cgg | cgg | ccc | gtg | gcc | ctg | cag | ctg | 1008 |
| Leu | Ala | Phe | Val | Leu | Gln | His | Leu | Arg | Arg | Pro | Val | Ala | Leu | Gln | Leu | |
| 325 | | | | | 330 | | | | | 335 | | | | | | |
| gac | tac | aac | tct | gtg | ggt | gac | att | ggc | gtg | gag | cag | ctg | ctg | cct | tgc | 1056 |
| Asp | Tyr | Asn | Ser | Val | Gly | Asp | Ile | Gly | Val | Glu | Gln | Leu | Leu | Pro | Cys | |
| 340 | | | | | 345 | | | | | 350 | | | | | | |
| ctt | ggg | gtc | tgc | aag | gct | ctg | tat | ttg | cgc | gat | aac | aat | atc | tca | gac | 1104 |
| Leu | Gly | Val | Cys | Lys | Ala | Leu | Tyr | Leu | Arg | Asp | Asn | Asn | Ile | Ser | Asp | |
| 355 | | | | | 360 | | | | | 365 | | | | | | |
| cga | ggc | atc | tgc | aag | ctc | att | gaa | tgt | gct | ctt | cac | tgc | gag | caa | ttg | 1152 |
| Arg | Gly | Ile | Cys | Lys | Leu | Ile | Glu | Cys | Ala | Leu | His | Cys | Glu | Gln | Leu | |
| 370 | | | | | 375 | | | | | 380 | | | | | | |
| cag | aag | tta | gcg | ctg | ggg | aat | aac | tac | atc | act | gcc | gcg | gga | gcc | caa | 1200 |
| Gln | Lys | Leu | Ala | Leu | Gly | Asn | Asn | Tyr | Ile | Thr | Ala | Ala | Gly | Ala | Gln | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| gtg | ctg | gcc | | | | | | | | | | | | | | 1209 |
| Val | Leu | Ala | | | | | | | | | | | | | | |

<210> 176
<211> 403
<212> PRT
<213> Homo sapiens

<400> 176

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Pro | Gly | Val | Ala | Asp | Arg | Leu | Ile | Arg | Leu | Leu | Gln | Glu | Thr | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Leu | His | Gly | Leu | Cys | His | Leu | Pro | Val | Phe | Ser | Trp | Met | Val | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Lys | Cys | His | Gln | Glu | Leu | Leu | Leu | Gln | Glu | Gly | Gly | Ser | Pro | Lys | Thr |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Thr | Thr | Asp | Met | Tyr | Leu | Leu | Ile | Leu | Gln | His | Phe | Leu | Leu | His | Ala |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Thr | Pro | Pro | Asp | Ser | Ala | Ser | Gln | Gly | Leu | Gly | Pro | Ser | Leu | Leu | Arg |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gly | Arg | Leu | Pro | Thr | Leu | Leu | His | Leu | Gly | Arg | Leu | Ala | Leu | Trp | Gly |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Leu | Gly | Met | Cys | Tyr | Val | Phe | Ser | Ala | Gln | Gln | Leu | Gln | Ala | Ala | |
| | | | 100 | | | | | 105 | | | | 110 | | | |
| Gln | Val | Ser | Pro | Asp | Asp | Ile | Ser | Leu | Gly | Phe | Leu | Val | Arg | Ala | Lys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Val | Val | Pro | Gly | Ser | Thr | Ala | Pro | Leu | Glu | Phe | Leu | His | Ile | Thr |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Phe | Gln | Cys | Phe | Phe | Ala | Ala | Phe | Tyr | Leu | Ala | Leu | Ser | Ala | Asp | Val |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Pro | Pro | Ala | Leu | Leu | Arg | His | Leu | Phe | Asn | Cys | Gly | Arg | Pro | Gly | Asn |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Ser | Pro | Met | Ala | Arg | Leu | Leu | Pro | Thr | Met | Cys | Ile | Gln | Ala | Ser | Glu |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Gly | Lys | Asp | Ser | Ser | Val | Ala | Ala | Leu | Leu | Gln | Lys | Ala | Glu | Pro | His |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Asn | Leu | Gln | Ile | Thr | Ala | Ala | Phe | Leu | Ala | Gly | Leu | Leu | Ser | Arg | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| His | Trp | Gly | Leu | Leu | Ala | Glu | Cys | Gln | Thr | Ser | Glu | Lys | Ala | Leu | Leu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Arg | Arg | Gln | Ala | Cys | Ala | Arg | Trp | Cys | Leu | Ala | Arg | Ser | Leu | Arg | Lys |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| His | Phe | His | Ser | Ile | Pro | Pro | Ala | Ala | Pro | Gly | Glu | Ala | Lys | Ser | Val |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| His | Ala | Met | Pro | Gly | Phe | Ile | Trp | Leu | Ile | Arg | Ser | Leu | Tyr | Glu | Met |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Gln | Glu | Glu | Arg | Leu | Ala | Arg | Lys | Ala | Ala | Arg | Gly | Leu | Asn | Val | Gly |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| His | Leu | Lys | Leu | Thr | Phe | Cys | Ser | Val | Gly | Pro | Thr | Glu | Cys | Ala | Ala |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Leu | Ala | Phe | Val | Leu | Gln | His | Leu | Arg | Arg | Pro | Val | Ala | Leu | Gln | Leu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Asp | Tyr | Asn | Ser | Val | Gly | Asp | Ile | Gly | Val | Glu | Gln | Leu | Leu | Pro | Cys |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Leu | Gly | Val | Cys | Lys | Ala | Leu | Tyr | Leu | Arg | Asp | Asn | Asn | Ile | Ser | Asp |

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355 360 365
 Arg Gly Ile Cys Lys Leu Ile Glu Cys Ala Leu His Cys Glu Gln Leu
 370 375 380
 Gln Lys Leu Ala Leu Gly Asn Asn Tyr Ile Thr Ala Ala Gly Ala Gln
 385 390 395 400
 Val Leu Ala

<210> 177
 <211> 261
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1) ... (261)

<400> 177
 atg aat ttc ata aag gac aat agc cga gcc ctt att caa aga atg gga 48
 Met Asn Phe Ile Lys Asp Asn Ser Arg Ala Leu Ile Gln Arg Met Gly
 1 5 10 15

 atg act gtt ata aag caa atc aca gat gac cta ttt gta tgg aat gtt 96
 Met Thr Val Ile Lys Gln Ile Thr Asp Asp Leu Phe Val Trp Asn Val
 20 25 30

 ctg aat cgc gaa gaa gta aac atc att tgc tgc gag aag gtg gag cag 144
 Leu Asn Arg Glu Glu Val Asn Ile Ile Cys Cys Glu Lys Val Glu Gln
 35 40 45

 gat gct gct aga ggg atc att cac atg att ttg aaa aag ggt tca gag 192
 Asp Ala Ala Arg Gly Ile Ile His Met Ile Leu Lys Lys Gly Ser Glu
 50 55 60

 tcc tgt aac ctc ttt ctt aaa tcc ctt aag gag tgg aac tat cct cta 240
 Ser Cys Asn Leu Phe Leu Lys Ser Leu Lys Glu Trp Asn Tyr Pro Leu
 65 70 75 80

 ttt cag gac ttg aat gga caa 261
 Phe Gln Asp Leu Asn Gly Gln
 85

<210> 178
 <211> 87
 <212> PRT
 <213> Homo sapiens

<400> 178
 Met Asn Phe Ile Lys Asp Asn Ser Arg Ala Leu Ile Gln Arg Met Gly
 1 5 10 15
 Met Thr Val Ile Lys Gln Ile Thr Asp Asp Leu Phe Val Trp Asn Val

006646360.05301

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 20 | | 25 | | 30 | | | | | | | | | | |
| Leu | Asn | Arg | Glu | Glu | Val | Asn | Ile | Ile | Cys | Cys | Glu | Lys | Val | Glu | Gln |
| | 35 | | | | | | 40 | | | | | 45 | | | |
| Asp | Ala | Ala | Arg | Gly | Ile | Ile | His | Met | Ile | Leu | Lys | Lys | Gly | Ser | Glu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ser | Cys | Asn | Leu | Phe | Leu | Lys | Ser | Leu | Lys | Glu | Trp | Asn | Tyr | Pro | Leu |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Phe | Gln | Asp | Leu | Asn | Gly | Gln | | | | | | | | | |
| | | | | | 85 | | | | | | | | | | |

<210> 179
 <211> 891
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1) ... (891)

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|---|-----|
| <400> 179 | |
| ctt cag agc ccc tgc atc att gaa ggg gaa tct ggc aaa ggc aag tcc | 48 |
| Leu Gln Ser Pro Cys Ile Ile Glu Gly Glu Ser Gly Lys Gly Lys Ser | |
| 1 5 10 15 | |
| act ctg ctg cag cgc att gcc atg ctc tgg ggc tcc gga aag tgc aag | 96 |
| Thr Leu Leu Gln Arg Ile Ala Met Leu Trp Gly Ser Gly Lys Cys Lys | |
| 20 25 30 | |
| gct ctg acc aag ttc aaa ttc gtc ttc ttc ctc cgt ctc agc agg gcc | 144 |
| Ala Leu Thr Lys Phe Lys Phe Val Phe Phe Leu Arg Leu Ser Arg Ala | |
| 35 40 45 | |
| cag ggt gga ctt ttt gaa acc ctc tgt gat caa ctc ctg gat ata cct | 192 |
| Gln Gly Gly Leu Phe Glu Thr Leu Cys Asp Gln Leu Leu Asp Ile Pro | |
| 50 55 60 | |
| ggc aca atc agg aag cag aca ttc atg gcc atg ctg ctg aag ctg cgg | 240 |
| Gly Thr Ile Arg Lys Gln Thr Phe Met Ala Met Leu Leu Lys Leu Arg | |
| 65 70 75 80 | |
| cag agg gtt ctt ttc ctt ctt gat ggc tac aat gaa ttc aag ccc cag | 288 |
| Gln Arg Val Leu Phe Leu Leu Asp Gly Tyr Asn Glu Phe Lys Pro Gln | |
| 85 90 95 | |
| aac tgc cca gaa atc gaa gcc ctg ata aag gaa aac cac cgc ttc aag | 336 |
| Asn Cys Pro Glu Ile Glu Ala Leu Ile Lys Glu Asn His Arg Phe Lys | |
| 100 105 110 | |
| aac atg gtc atc gtc acc act acc act gag tgc ctg agg cac ata cgg | 384 |
| Asn Met Val Ile Val Thr Thr Thr Thr Glu Cys Leu Arg His Ile Arg | |
| 115 120 125 | |

0306494-05301

Leu Gln Ser Pro Cys Ile Ile Glu Gly Glu Ser Gly Lys Gly Lys Ser
1 5 10 15

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<400> 181
ggt aac ttg aag aac ctt aca aag ctc ata atg gat aac ata aag atg    48
Gly Asn Leu Lys Asn Leu Thr Lys Leu Ile Met Asp Asn Ile Lys Met
  1                      5                      10                      15

aat gaa gaa gat gct ata aaa cta gct gaa ggc ctg aaa aac ctg aag    96

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<400> 182
Gly Asn Leu Lys Asn Leu Thr Lys Leu Ile Met Asp Asn Ile Lys Met
1          5          10          15
Asn Glu Glu Asp Ala Ile Lys Leu Ala Glu Gly Leu Lys Asn Leu Lys
20          25          30
Lys Met Cys Leu Phe His Leu Thr His Leu Ser Asp Ile Gly Glu Gly
35          40          45
Met Asp Tyr Ile Val Lys Ser Leu Ser Ser Glu Pro Cys Asp Leu Glu
50          55          60
Glu Ile Gln Leu Val Ser Cys Cys Leu Ser Ala Asn Ala Val Lys Ile
65          70          75          80
Leu Ala Gln Asn Leu His Asn Leu Val Lys Leu Ser Ile Leu Asp Leu
85          90          95
Ser Glu Asn Tyr Leu Glu Lys Asp Gly Asn Glu Ala Leu His Glu Leu
100         105         110
Ile Asp Arg Met Asn Val Leu Glu Gln Leu Thr Ala Leu Met Leu Pro
115         120         125
Trp Gly Cys Asp Val Gln Gly Ser Leu Ser Ser Leu Leu Lys His Leu
130         135         140
Glu Glu Val Pro Gln Leu Val Lys Leu Gly Leu Lys Asn Trp Arg Leu
145         150         155         160
Thr Asp Thr Glu Ile Arg Ile Leu Gly Ala Phe Phe Gly Lys Asn Pro
165         170         175
Leu Lys Asn Phe Gln Gln Leu Asn Leu Ala Gly Asn Arg Val Ser Ser
180         185         190
Asp Gly Trp Leu Ala Phe Met Gly Val Phe Glu Asn Leu Lys
195         200         205

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<210> 183
<211> 165
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(165)

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<400> 183
acc tac att ccc agc agg gct gta tct ttg ttc ttc aac tgg aag cag   48
Thr Tyr Ile Pro Ser Arg Ala Val Ser Leu Phe Phe Asn Trp Lys Gln
1          5          10          15

gaa ttc agg act ctg gag gtc aca ctc cgg gat ttc agc aag ttg aat   96
Glu Phe Arg Thr Leu Glu Val Thr Leu Arg Asp Phe Ser Lys Leu Asn
20          25          30

aag caa gat atc aga tat ctg ggg aaa ata ttc agc tct gcc aca agc   144
Lys Gln Asp Ile Arg Tyr Leu Gly Lys Ile Phe Ser Ser Ala Thr Ser
35          40          45

ctc agg ctg caa ata aag aga                                     165

```

09064934.052301

Leu Arg Leu Gln Ile Lys Arg
50 55

<210> 184
<211> 55
<212> PRT
<213> Homo sapiens

<400> 184
Thr Tyr Ile Pro Ser Arg Ala Val Ser Leu Phe Phe Asn Trp Lys Gln
1 5 10 15
Glu Phe Arg Thr Leu Glu Val Thr Leu Arg Asp Phe Ser Lys Leu Asn
20 25 30
Lys Gln Asp Ile Arg Tyr Leu Gly Lys Ile Phe Ser Ser Ala Thr Ser
35 40 45
Leu Arg Leu Gln Ile Lys Arg
50 55

<210> 185
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 185
gaaatgtgct cgcaggagg

19

<210> 186
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 186
gatgagcttc tgacaggccc

20

<210> 187
<211> 3063
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1) ... (2385)

<221> CDS
<222> (2389) ... (2928)

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| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tgt | gaa | atg | tgc | tcg | cag | gag | gct | ttt | cag | gca | cag | agg | agc | cag | ctg | 48 |
| Cys | Glu | Met | Cys | Ser | Gln | Glu | Ala | Phe | Gln | Ala | Gln | Arg | Ser | Gln | Leu | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| gtc | gag | ctg | ctg | gtc | tca | ggg | tcc | ctg | gaa | ggc | ttc | gag | agt | gtc | ctg | 96 |
| Val | Glu | Leu | Leu | Val | Ser | Gly | Ser | Leu | Glu | Gly | Phe | Glu | Ser | Val | Leu | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| gac | tgg | ctg | ctg | tcc | tgg | gag | gtc | ctc | tcc | tgg | gag | gac | tac | gag | ggc | 144 |
| Asp | Trp | Leu | Leu | Ser | Trp | Glu | Val | Leu | Ser | Trp | Glu | Asp | Tyr | Glu | Gly | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| ttc | cac | ctc | ctg | ggc | cag | cct | ctc | tcc | cac | ttg | gcc | agg | cgc | ctt | ctg | 192 |
| Phe | His | Leu | Leu | Gly | Gln | Pro | Leu | Ser | His | Leu | Ala | Arg | Arg | Leu | Leu | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| gac | acc | gtc | tgg | aat | aag | ggg | act | tgg | gcc | tgt | cag | aag | ctc | atc | gcg | 240 |
| Asp | Thr | Val | Trp | Asn | Lys | Gly | Thr | Trp | Ala | Cys | Gln | Lys | Leu | Ile | Ala | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| gct | gcc | caa | gaa | gcc | cag | gcc | gac | agc | cag | tcc | ccc | aag | ctg | cat | ggc | 288 |
| Ala | Ala | Gln | Glu | Ala | Gln | Ala | Asp | Ser | Gln | Ser | Pro | Lys | Leu | His | Gly | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| tgc | tgg | gac | ccc | cac | tcg | ctc | cac | cca | gcc | cga | gac | ctg | cag | agt | cac | 336 |
| Cys | Trp | Asp | Pro | His | Ser | Leu | His | Pro | Ala | Arg | Asp | Leu | Gln | Ser | His | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| cgg | cca | gcc | att | gtc | agg | agg | ctc | cac | agc | cat | gtg | gag | aac | atg | ctg | 384 |
| Arg | Pro | Ala | Ile | Val | Arg | Arg | Leu | His | Ser | His | Val | Glu | Asn | Met | Leu | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| gac | ctg | gca | tgg | gag | cgg | ggg | ttc | gtc | agc | cag | tat | gaa | tgt | gat | gaa | 432 |
| Asp | Leu | Ala | Trp | Glu | Arg | Gly | Phe | Val | Ser | Gln | Tyr | Glu | Cys | Asp | Glu | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| atc | agg | ttg | ccg | atc | ttc | aca | ccg | tcc | cag | agg | gca | aga | agg | ctg | ctt | 480 |
| Ile | Arg | Leu | Pro | Ile | Phe | Thr | Pro | Ser | Gln | Arg | Ala | Arg | Arg | Leu | Leu | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| gat | ctt | gcc | acg | gtg | aaa | gcg | aat | gga | ttg | gct | gcc | ttc | ctt | cta | caa | 528 |
| Asp | Leu | Ala | Thr | Val | Lys | Ala | Asn | Gly | Leu | Ala | Ala | Phe | Leu | Leu | Gln | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| cat | gtt | cag | gaa | tta | cca | gtc | cca | ttg | gcc | ctg | cct | ttg | gaa | gct | gcc | 576 |
| His | Val | Gln | Glu | Leu | Pro | Val | Pro | Leu | Ala | Leu | Pro | Leu | Glu | Ala | Ala | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| aca | tgc | aag | aag | tat | atg | gcc | aag | ctg | agg | acc | acg | gtg | tct | gct | cag | 624 |
| Thr | Cys | Lys | Lys | Tyr | Met | Ala | Lys | Leu | Arg | Thr | Thr | Val | Ser | Ala | Gln | |
| | | | | | | | | | | | | | | | | |

| | |
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| tct cgc ttc ctc agt acc tat gat gga gca gag acg ctc tgc ctg gag | 672 |
| Ser Arg Phe Leu Ser Thr Tyr Asp Gly Ala Glu Thr Leu Cys Leu Glu | |
| 210 215 220 | |
| gac ata tac aca gag aat gtc ctg gag gtc tgg gca gat gtg ggc atg | 720 |
| Asp Ile Tyr Thr Glu Asn Val Leu Glu Val Trp Ala Asp Val Gly Met | |
| 225 230 235 240 | |
| gct gga ccc ccg cag aag agc cca gcc acc ctg ggc ctg gag gag ctc | 768 |
| Ala Gly Pro Pro Gln Lys Ser Pro Ala Thr Leu Gly Leu Glu Glu Leu | |
| 245 250 255 | |
| ttc agc acc cct ggc cac ctc aat gac gat gcg gac act gtg ctg gtg | 816 |
| Phe Ser Thr Pro Gly His Leu Asn Asp Asp Ala Asp Thr Val Leu Val | |
| 260 265 270 | |
| gtg ggt gag gcg ggc agt ggc aag agc acg ctc ctg cag cgg ctg cac | 864 |
| Val Gly Glu Ala Gly Ser Gly Lys Ser Thr Leu Leu Gln Arg Leu His | |
| 275 280 285 | |
| ttg ctg tgg gct gca ggg caa gac ttc cag gaa ttt ctc ttt gtc ttc | 912 |
| Leu Leu Trp Ala Ala Gly Gln Asp Phe Gln Glu Phe Leu Phe Val Phe | |
| 290 295 300 | |
| cca ttc agc tgc cgg cag ctg cag tgc atg gcc aaa cca ctc tct gtg | 960 |
| Pro Phe Ser Cys Arg Gln Leu Gln Cys Met Ala Lys Pro Leu Ser Val | |
| 305 310 315 320 | |
| cgg act cta ctc ttt gag cac tgc tgt tgg cct gat gtt ggt caa gaa | 1008 |
| Arg Thr Leu Leu Phe Glu His Cys Cys Trp Pro Asp Val Gly Gln Glu | |
| 325 330 335 | |
| gac atc ttc cag tta ctc ctt gac cac cct gac cgt gtc ctg tta acc | 1056 |
| Asp Ile Phe Gln Leu Leu Leu Asp His Pro Asp Arg Val Leu Leu Thr | |
| 340 345 350 | |
| ttt gat ggc ttt gac gag ttc aag ttc agg ttc acg gat cgt gaa cgc | 1104 |
| Phe Asp Gly Phe Asp Glu Phe Lys Phe Arg Phe Thr Asp Arg Glu Arg | |
| 355 360 365 | |
| cac tgc tcc ccg acc gac ccc acc tct gtc cag acc ctg ctc ttc aac | 1152 |
| His Cys Ser Pro Thr Asp Pro Thr Ser Val Gln Thr Leu Leu Phe Asn | |
| 370 375 380 | |
| ctt ctg cag ggc aac ctg ctg aag aat gcc cgc aag gtg gtg acc agc | 1200 |
| Leu Leu Gln Gly Asn Leu Leu Lys Asn Ala Arg Lys Val Val Thr Ser | |
| 385 390 395 400 | |
| cgt ccg gcc gct gtg tcg gcg ttc ctc agg aag tac atc cgc acc gag | 1248 |
| Arg Pro Ala Ala Val Ser Ala Phe Leu Arg Lys Tyr Ile Arg Thr Glu | |
| 405 410 415 | |

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| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| ttc | aac | ctc | aag | ggc | ttc | tct | gaa | cag | ggc | atc | gag | ctg | tac | ctg | agg | 1296 |
| Phe | Asn | Leu | Lys | Gly | Phe | Ser | Glu | Gln | Gly | Ile | Glu | Leu | Tyr | Leu | Arg | |
| | | | 420 | | | | | 425 | | | | | 430 | | | |
| aag | cgc | cat | cat | gag | ccc | ggg | gtg | gcg | gac | cgc | ctc | atc | cgc | ctg | ctc | 1344 |
| Lys | Arg | His | His | Glu | Pro | Gly | Val | Ala | Asp | Arg | Leu | Ile | Arg | Leu | Leu | |
| | | 435 | | | | | 440 | | | | | 445 | | | | |
| caa | gag | acc | tca | gcc | ctg | cac | ggt | ttg | tgc | cac | ctg | cct | gtc | ttc | tca | 1392 |
| Gln | Glu | Thr | Ser | Ala | Leu | His | Gly | Leu | Cys | His | Leu | Pro | Val | Phe | Ser | |
| | | 450 | | | | 455 | | | | | 460 | | | | | |
| tgg | atg | gtg | tcc | aaa | tgc | cac | cag | gaa | ctg | ttg | ctg | cag | gag | ggg | ggg | 1440 |
| Trp | Met | Val | Ser | Lys | Cys | His | Gln | Glu | Leu | Leu | Leu | Gln | Glu | Gly | Gly | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| tcc | cca | aag | acc | act | aca | gat | atg | tac | ctg | ctg | att | ctg | cag | cat | ttt | 1488 |
| Ser | Pro | Lys | Thr | Thr | Thr | Asp | Met | Tyr | Leu | Leu | Ile | Leu | Gln | His | Phe | |
| | | | 485 | | | | | 490 | | | | | | 495 | | |
| ctg | ctg | cat | gcc | acc | ccc | cca | gac | tca | gct | tcc | caa | ggt | ctg | gga | ccc | 1536 |
| Leu | Leu | His | Ala | Thr | Pro | Pro | Asp | Ser | Ala | Ser | Gln | Gly | Leu | Gly | Pro | |
| | | | 500 | | | | | 505 | | | | | 510 | | | |
| agt | ctt | ctt | cgg | ggc | cgc | ctc | ccc | acc | ctc | ctg | cac | ctg | ggc | aga | ctg | 1584 |
| Ser | Leu | Leu | Arg | Gly | Arg | Leu | Pro | Thr | Leu | Leu | His | Leu | Gly | Arg | Leu | |
| | | 515 | | | | | 520 | | | | | 525 | | | | |
| gct | ctg | tgg | ggc | ctg | ggc | atg | tgc | tgc | tac | gtg | ttc | tca | gcc | cag | cag | 1632 |
| Ala | Leu | Trp | Gly | Leu | Gly | Met | Cys | Cys | Tyr | Val | Phe | Ser | Ala | Gln | Gln | |
| | 530 | | | | | 535 | | | | | 540 | | | | | |
| ctc | cag | gca | gca | cag | gtc | agc | cct | gat | gac | att | tct | ctt | ggc | ttc | ctg | 1680 |
| Leu | Gln | Ala | Ala | Gln | Val | Ser | Pro | Asp | Asp | Ile | Ser | Leu | Gly | Phe | Leu | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | |
| gtg | cgt | gcc | aaa | ggt | gtc | gtg | cca | ggg | agt | acg | gcg | ccc | ctg | gaa | ttc | 1728 |
| Val | Arg | Ala | Lys | Gly | Val | Val | Pro | Gly | Ser | Thr | Ala | Pro | Leu | Glu | Phe | |
| | | | 565 | | | | | | 570 | | | | | 575 | | |
| ctt | cac | atc | act | ttc | cag | tgc | ttc | ttt | gcc | gcg | ttc | tac | ctg | gca | ctc | 1776 |
| Leu | His | Ile | Thr | Phe | Gln | Cys | Phe | Phe | Ala | Ala | Phe | Tyr | Leu | Ala | Leu | |
| | | | 580 | | | | | 585 | | | | | 590 | | | |
| agt | gct | gat | gtg | cca | cca | gct | ttg | ctc | aga | cac | ctc | ttc | aat | tgt | ggc | 1824 |
| Ser | Ala | Asp | Val | Pro | Pro | Ala | Leu | Leu | Arg | His | Leu | Phe | Asn | Cys | Gly | |
| | | 595 | | | | | 600 | | | | | 605 | | | | |
| agg | cca | ggc | aac | tca | cca | atg | gcc | agg | ctc | ctg | ccc | acg | atg | tgc | atc | 1872 |
| Arg | Pro | Gly | Asn | Ser | Pro | Met | Ala | Arg | Leu | Leu | Pro | Thr | Met | Cys | Ile | |
| | 610 | | | | | 615 | | | | | 620 | | | | | |
| cag | gcc | tcg | gag | gga | aag | gac | ag | | | | | | | | | |

| | |
|---|------|
| Gln Ala Ser Glu Gly Lys Asp Ser Ser Val Ala Ala Leu Leu Gln Lys | |
| 625 630 635 640 | |
| gcc gag ccg cac aac ctt cag atc aca gca gcc ttc ctg gca ggg ctg | 1968 |
| Ala Glu Pro His Asn Leu Gln Ile Thr Ala Ala Phe Leu Ala Gly Leu | |
| 645 650 655 | |
| ttg tcc cgg gag cac tgg ggc ctg ctg gct gag tgc cag aca tct gag | 2016 |
| Leu Ser Arg Glu His Trp Gly Leu Leu Ala Glu Cys Gln Thr Ser Glu | |
| 660 665 670 | |
| aag gcc ctg ctc cgg cgc cag gcc tgt gcc cgc tgg tgt ctg gcc cgc | 2064 |
| Lys Ala Leu Leu Arg Arg Gln Ala Cys Ala Arg Trp Cys Leu Ala Arg | |
| 675 680 685 | |
| agc ctc cgc aag cac ttc cac tcc atc ccg cca gct gca ccg ggt gag | 2112 |
| Ser Leu Arg Lys His Phe His Ser Ile Pro Pro Ala Ala Pro Gly Glu | |
| 690 695 700 | |
| gcc aag agc gtg cat gcc atg ccc ggg ttc atc tgg ctc atc cgg agc | 2160 |
| Ala Lys Ser Val His Ala Met Pro Gly Phe Ile Trp Leu Ile Arg Ser | |
| 705 710 715 720 | |
| ctg tac gag atg cag gag gag cgg ctg gct cgg aag gct gca cgt ggc | 2208 |
| Leu Tyr Glu Met Gln Glu Glu Arg Leu Ala Arg Lys Ala Ala Arg Gly | |
| 725 730 735 | |
| ctg aat gtt ggg cac ctc aag ttg aca ttt tgc agt gtg ggc ccc act | 2256 |
| Leu Asn Val Gly His Leu Lys Leu Thr Phe Cys Ser Val Gly Pro Thr | |
| 740 745 750 | |
| gag tgt gct gcc ctg gcc ttt gtg ctg cag cac ctc cgg cgg ccc gtg | 2304 |
| Glu Cys Ala Ala Leu Ala Phe Val Leu Gln His Leu Arg Arg Pro Val | |
| 755 760 765 | |
| gcc ctg cag ctg gac tac aac tct gtg ggt gac att ggc gtg gag cag | 2352 |
| Ala Leu Gln Leu Asp Tyr Asn Ser Val Gly Asp Ile Gly Val Glu Gln | |
| 770 775 780 | |
| ctg ctg cct tgc ctt ggt gtc tgc aag gct ctg taa ttc tgg ggc aac | 2400 |
| Leu Leu Pro Cys Leu Gly Val Cys Lys Ala Leu Phe Trp Gly Asn | |
| 785 790 795 | |
| aga gtg ggt gac gag ggg gcc cag gcc ctg gct gaa gcc ttg ggt gat | 2448 |
| Arg Val Gly Asp Glu Gly Ala Gln Ala Leu Ala Glu Ala Leu Gly Asp | |
| 800 805 810 815 | |
| cac cag agc ttg agg tgg ctc agc ctg gtg ggg aac aac att ggc agt | 2496 |
| His Gln Ser Leu Arg Trp Leu Ser Leu Val Gly Asn Asn Ile Gly Ser | |
| 820 825 830 | |
| gtg ggt gcc caa gcc ttg gca ctg atg ctg gca aag aac gtc atg cta | 2544 |
| Val Gly Ala Gln Ala Leu Ala Leu Met Leu Ala Lys Asn Val Met Leu | |

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<210> 188
<211> 795
<212> PRT
<213> Homo sapiens
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| | | | | | | | | | | | | | | | |
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| Cys
1 | Glu | Met | Cys | Ser
5 | Gln | Glu | Ala | Phe | Gln
10 | Ala | Gln | Arg | Ser | Gln
15 | Leu |
| Val | Glu | Leu | Leu | Val | Ser | Gly | Ser | Leu | Glu | Gly | Phe | Glu | Ser | Val | Leu |
| Asp | Trp | Leu | Leu | Ser | Trp | Glu | Val | Leu | Ser | Trp | Glu | Asp | Tyr | Glu | Gly |
| Phe | His | Leu | Leu | Gly | Gln | Pro | Leu | Ser | His | Leu | Ala | Arg | Arg | Leu | Leu |
| Asp | Thr | Val | Trp | Asn | Lys | Gly | Thr | Trp | Ala | Cys | Gln | Lys | Leu | Ile | Ala |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ala | Ala | Gln | Glu | Ala | Gln | Ala | Asp | Ser | Gln | Ser | Pro | Lys | Leu | His | Gly |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Cys | Trp | Asp | Pro | His | Ser | Leu | His | Pro | Ala | Arg | Asp | Leu | Gln | Ser | His |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Arg | Pro | Ala | Ile | Val | Arg | Arg | Leu | His | Ser | His | Val | Glu | Asn | Met | Leu |
| | | | 115 | | | | | 120 | | | | | 125 | | |
| Asp | Leu | Ala | Trp | Glu | Arg | Gly | Phe | Val | Ser | Gln | Tyr | Glu | Cys | Asp | Glu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ile | Arg | Leu | Pro | Ile | Phe | Thr | Pro | Ser | Gln | Arg | Ala | Arg | Arg | Leu | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asp | Leu | Ala | Thr | Val | Lys | Ala | Asn | Gly | Leu | Ala | Ala | Phe | Leu | Leu | Gln |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| His | Val | Gln | Glu | Leu | Pro | Val | Pro | Leu | Ala | Leu | Pro | Leu | Glu | Ala | Ala |
| | | | 180 | | | | | | 185 | | | | 190 | | |
| Thr | Cys | Lys | Lys | Tyr | Met | Ala | Lys | Leu | Arg | Thr | Thr | Val | Ser | Ala | Gln |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ser | Arg | Phe | Leu | Ser | Thr | Tyr | Asp | Gly | Ala | Glu | Thr | Leu | Cys | Leu | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asp | Ile | Tyr | Thr | Glu | Asn | Val | Leu | Glu | Val | Trp | Ala | Asp | Val | Gly | Met |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Ala | Gly | Pro | Pro | Gln | Lys | Ser | Pro | Ala | Thr | Leu | Gly | Leu | Glu | Glu | Leu |
| | | | | 245 | | | | | | 250 | | | | 255 | |
| Phe | Ser | Thr | Pro | Gly | His | Leu | Asn | Asp | Ala | Asp | Thr | Val | Leu | Val | |
| | | | 260 | | | | | 265 | | | | 270 | | | |
| Val | Gly | Glu | Ala | Gly | Ser | Gly | Lys | Ser | Thr | Leu | Leu | Gln | Arg | Leu | His |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Leu | Trp | Ala | Ala | Gly | Gln | Asp | Phe | Gln | Glu | Phe | Leu | Phe | Val | Phe |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Pro | Phe | Ser | Cys | Arg | Gln | Leu | Gln | Cys | Met | Ala | Lys | Pro | Leu | Ser | Val |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Arg | Thr | Leu | Leu | Phe | Glu | His | Cys | Cys | Trp | Pro | Asp | Val | Gly | Gln | Glu |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Asp | Ile | Phe | Gln | Leu | Leu | Leu | Asp | His | Pro | Asp | Arg | Val | Leu | Leu | Thr |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Phe | Asp | Gly | Phe | Asp | Glu | Phe | Lys | Phe | Arg | Phe | Thr | Asp | Arg | Glu | Arg |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| His | Cys | Ser | Pro | Thr | Asp | Pro | Thr | Ser | Val | Gln | Thr | Leu | Leu | Phe | Asn |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Leu | Leu | Gln | Gly | Asn | Leu | Leu | Lys | Asn | Ala | Arg | Lys | Val | Val | Thr | Ser |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Arg | Pro | Ala | Ala | Val | Ser | Ala | Phe | Leu | Arg | Lys | Tyr | Ile | Arg | Thr | Glu |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Phe | Asn | Leu | Lys | Gly | Phe | Ser | Glu | Gln | Gly | Ile | Glu | Leu | Tyr | Leu | Arg |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Lys | Arg | His | His | Glu | Pro | Gly | Val | Ala | Asp | Arg | Leu | Ile | Arg | Leu | Leu |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Gln | Glu | Thr | Ser | Ala | Leu | His | Gly | Leu | Cys | His | Leu | Pro | Val | Phe | Ser |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Trp | Met | Val | Ser | Lys | Cys | His | Gln | Glu | Leu | Leu | Leu | Gln | Glu | Gly | Gly |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Ser | Pro | Lys | Thr | Thr | Thr | Asp | Met | Tyr | Leu | Leu | Ile | Leu | Gln | His | Phe |
| | | | | 485 | | | | | 490 | | | | | 495 | |

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Leu Leu His Ala Thr Pro Pro Asp Ser Ala Ser Gln Gly Leu Gly Pro
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 Ser Leu Leu Arg Gly Arg Leu Pro Thr Leu Leu His Leu Gly Arg Leu
 515 520 525
 Ala Leu Trp Gly Leu Gly Met Cys Cys Tyr Val Phe Ser Ala Gln Gln
 530 535 540
 Leu Gln Ala Ala Gln Val Ser Pro Asp Asp Ile Ser Leu Gly Phe Leu
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 Val Arg Ala Lys Gly Val Val Pro Gly Ser Thr Ala Pro Leu Glu Phe
 565 570 575
 Leu His Ile Thr Phe Gln Cys Phe Phe Ala Ala Phe Tyr Leu Ala Leu
 580 585 590
 Ser Ala Asp Val Pro Pro Ala Leu Leu Arg His Leu Phe Asn Cys Gly
 595 600 605
 Arg Pro Gly Asn Ser Pro Met Ala Arg Leu Leu Pro Thr Met Cys Ile
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 Gln Ala Ser Glu Gly Lys Asp Ser Ser Val Ala Ala Leu Leu Gln Lys
 625 630 635 640
 Ala Glu Pro His Asn Leu Gln Ile Thr Ala Ala Phe Leu Ala Gly Leu
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 Leu Ser Arg Glu His Trp Gly Leu Leu Ala Glu Cys Gln Thr Ser Glu
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 Lys Ala Leu Leu Arg Arg Gln Ala Cys Ala Arg Trp Cys Leu Ala Arg
 675 680 685
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 Ala Lys Ser Val His Ala Met Pro Gly Phe Ile Trp Leu Ile Arg Ser
 705 710 715 720
 Leu Tyr Glu Met Gln Glu Glu Arg Leu Ala Arg Lys Ala Ala Arg Gly
 725 730 735
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 755 760 765
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<213> Homo sapiens

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 Asn Ile Gly Ser Val Gly Ala Gln Ala Leu Ala Leu Met Leu Ala Lys
 35 40 45
 Asn Val Met Leu Glu Glu Leu Cys Leu Glu Glu Asn His Leu Gln Asp

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Lys Ile Leu Asn Ile Lys Ile His Ala Ser Gly Phe Asn Lys Leu Leu
      85              90              95
Glu Ser Ile Phe Cys Ile Leu Leu Val Val Glu Ala Phe Phe Leu Gln
      100             105             110
Lys Val Val Lys Ile Leu Glu Glu Met Val Val Ser Trp Leu Glu Val
      115             120             125
Arg Leu Ser Asn Asn Cys Ile Thr Tyr Leu Gly Ala Glu Ala Leu Leu
      130             135             140
Gln Ala Leu Glu Arg Asn Asp Thr Ile Leu Glu Val Trp Leu Arg Gly
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Arg Leu Leu Leu
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gaagcagccc tg ctg cag aag gct gag cca cac aac ctg caa atc aca gca 231
      Leu Gln Lys Ala Glu Pro His Asn Leu Gln Ile Thr Ala
              1              5              10

gcc ttc cta gca ggt ctg ttg tcc cag cag cat cgg gac ctg ttg gct 279
Ala Phe Leu Ala Gly Leu Leu Ser Gln Gln His Arg Asp Leu Leu Ala
      15              20              25

gca tgc cag gtc tcc gag agg gta ctg ctc cag cgt cag gca cgt gcc 327
Ala Cys Gln Val Ser Glu Arg Val Leu Leu Gln Arg Gln Ala Arg Ala
      30              35              40              45

cgc tcg tgt ctg gcc cac agc ctc cgc gag cac ttc cat tcc atc ccg 375
Arg Ser Cys Leu Ala His Ser Leu Arg Glu His Phe His Ser Ile Pro
              50              55              60

cct gcc gtg ccc ggt gag acc aag agc atg cat gct atg ccg ggc ttc 423
Pro Ala Val Pro Gly Glu Thr Lys Ser Met His Ala Met Pro Gly Phe
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att tgg ctc atc cgt agc ctg tac gag atg cag gag gag cag ttg gcc 471

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Gln Glu Ala Val Arg Arg Leu Asp Ile Gly His Leu Lys Leu Thr Phe
95 100 105

tgc aga gtg ggc cct gca gag tgt gct gca ctg gcc ttt gta ctg caa 567
Cys Arg Val Gly Pro Ala Glu Cys Ala Ala Leu Ala Phe Val Leu Gln
110 115 120 125

cat ctc cag cgg cct gtg gcc cta cag ctg gat tac aac tct gtg 612
His Leu Gln Arg Pro Val Ala Leu Gln Leu Asp Tyr Asn Ser Val
130 135 140

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Val Ser Glu Arg Val Leu Leu Gln Arg Gln Ala Arg Ala Arg Ser Cys
35 40 45
Leu Ala His Ser Leu Arg Glu His Phe His Ser Ile Pro Pro Ala Val
50 55 60
Pro Gly Glu Thr Lys Ser Met His Ala Met Pro Gly Phe Ile Trp Leu
65 70 75 80
Ile Arg Ser Leu Tyr Glu Met Gln Glu Glu Gln Leu Ala Gln Glu Ala
85 90 95
Val Arg Arg Leu Asp Ile Gly His Leu Lys Leu Thr Phe Cys Arg Val
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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Gly | Leu | Leu | Ser | Gln | Gln | His | Arg | Asp | Leu | Leu | Ala | Ala | Cys | Gln |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ile | Ser | Glu | Arg | Val | Leu | Leu | Gln | Arg | Gln | Ala | Arg | Ala | Arg | Ser | Cys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Ala | His | Ser | Leu | Arg | Glu | His | Phe | His | Ser | Ile | Pro | Pro | Ala | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Pro | Gly | Glu | Thr | Lys | Ser | Met | His | Ala | Met | Pro | Gly | Phe | Ile | Trp | Leu |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65 | | 70 | | 75 | | 80 | | | | | | | | | |
| Ile | Arg | Ser | Leu | Tyr | Glu | Met | Gln | Glu | Glu | Gln | Leu | Ala | Gln | Glu | Ala |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Val | Arg | Arg | Leu | Asp | Ile | Gly | His | Leu | Lys | Leu | Thr | Phe | Cys | Arg | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gly | Pro | Ala | Glu | Cys | Ala | Ala | Leu | Ala | Phe | Val | Leu | Gln | His | Leu | Gln |
| | | | 115 | | | | | 120 | | | | | 125 | | |
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